Organizational Creative Climate and Learning Organization Factors: Their Contributions towards Innovation within the Private Sector Malaysia

Meriam Ismail

Private Education Department
Ministry of Education, Malaysia

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1.0 INTRODUCTION

Among the many streams of research regarding influencing factors on innovation, the idea of having a creative working climate (or environment) within an organization which relates to a suitable working culture to facilitate an environment that will enhance the organizational power is very much often being mentioned. This idea has been put forward during the middle 1980's and late 1990's by several scholars among others include Ekvall, Arvonen & Waldenstrom-Lindblad (1983), Ekvall & Tangeberg-Anderson (1986), Zain Mohamed (1995), Zain Mohamed and Rickards (1996) and Amabile & Conti (1999). Zain Mohamed's (1995) study identifies fifteen factors deem favorable for innovation implementations in private organizations both large and small of which five of them are similar to Amabile and Conti's (1999) eight organizational creative climate factors likely to foster innovation. Organizational climate is regarded as an attribute of the organization, a conglomerate of attitudes, feelings and behaviors which characterize life in organizations and exists independently of the perceptions and understandings of the members of the organizations (Ekvall, 1996: 105). It is conceived as an organizational reality in 'objective' sense. Creativity on the other hand, is a thinking process which helps generate ideas (Majaro, 1992).

Researches on innovation have also identified a number of human, social and cultural factors which are crucial for effective operation of innovation at the organizational level (OECD, 1997). These factors according to OECD (1997) are mostly centered around learning; it is learning by organizations as a whole (diffusion of knowledge to a broad range of key individuals within them) which is critical to an organization's innovative capabilities. Beginning late 1990's and the year 2000, the idea of learning at the organizational level and knowledge management have been closely linked to innovation (Argyris & Schon, 1978; Drucker, 1988; Garvin, 1993; Nonaka & Takeuchi, 1995; Watkins & Marsick, 1996). This stream of research also called the neo-Schumpeterian approach stamps from earlier scholars such as Polanyi (1966) and Nonaka (1991), who view innovation in terms of interaction between market opportunities and the organization's knowledge base and capabilities. A learning organization is a system in the organization that is capable to changes which require its members to act upon the change and which needs learning to do so. It is one in which learning and work are integrated in an ongoing and systematic fashion to support continuous improvement; this learning will have to occur at all levels within an organization, individual, group, organization and global (Watkins, 1996: 91).

Innovation on the other hand is the process of creating commercial products (or services) from inventions (Hitt et al., 1999: 476). It includes both technological and non-technological innovation. The non-technological innovation discussed in this study is focused on organizational innovation. It is included together with technological innovation since organizational innovation occurs as part of technological innovation according to Damanpour and Evans cited by Van de Ven and Angle (1989).

Technological innovation (TI) comprises of implemented technologically new products and processes and significant technological improvements in products and processes (OECD, 1997: 47). The term 'implemented' here means introduced on the market (product/service innovation) or used within a production process (process innovation). The sub factors within this TI component are related to technology transfer (which includes technology assimilation) and diffusion of innovation which facilitate technological innovation to occur. Technological transfer is "the transmission of technology from those who possess it to those who do not (within an organization)" (Bartol and Martin, 1998:

647). It involves the acquisition of technological knowledge or know-how generated by one group or institution to be embodied in the operations of the recipient organization (Teece, 1977). The technology could be tangible goods or processes such as component parts or machinery or intangible know-how such as advance knowledge of road building techniques and must be embodied into the operations of the recipient organization (Wong et al., 1999: 428).

Technology assimilation is the acquisition, absorption and adaptation of technologies developed (through R&D or otherwise) outside of the firm (Wong et al., 1999). **Diffusion** is the way technological innovation spread through market or market channels, including different regions and to different industries/market and organizations (OECD, 1997). It gives technological innovation economic value. Hence, technological innovation in this study is assessed by technology transfer and diffusion factors.

Organizational innovation is a managerial innovation which includes the implementation of advanced management techniques such as the quality assurance program (ISO 9000 or basic elements of TQM) within the organization for the purpose of developing significant improvement in the production or delivery of goods or services (OECD, 1997: 54-55). The basic pillars of TQM are (1) satisfying the customer, (2) effective management system/process such as ISO 9000 program, (3) teamwork practice and (4) improvement tools for continuous improvement. The component is being assessed by statements in the questionnaire relating to the ISO 9000 program implementation and its procedures. Justifiably, also for ease of use, the term innovation which is widely referred to in this writing includes the two major constructs of innovation namely technological innovation and organisational innovation.

2.0 KNOWLEDGE MANAGEMENT, INNOVATION, AND LEARNING CULTURE

Knowledge management is a framework within which the organization views all its processes as knowledge processes. This concept is a transition from the information value chain to a knowledge value chain. In the knowledge value chain, human beings play active roles by making sense of the information available. Whereas within the information value chain, the technological systems play major roles in guiding the organizational processes while human beings are relatively passive processors (Malhotra, 1998). Knowledge management facilitates continuous and ongoing processes of learning and unlearning, thereby minimizing top-down radical change. Where knowledge management is concerned, two aspects muct be included which are (1) data and information processing capacity technologies as well as (2) creative and innovative capacity of human beings. According to Nonaka, knowledge is embedded in people. It is the appropriate utilization of information and requires a synergy between technological and behaviorial issues. This is where human actors engage in an active process of sense making to continuously assess the effectiveness of 'best practises'. Thus double loop learning, unlearning, and relearning processes need to be designed into the organizational processes. This study focuses primarily on the human capabilities in effectively utilizing information available through creativeness and innovativeness in enhancing the organizational performances.

3.0 STATEMENT OF THE PROBLEM

It is widely acknowledged inspite of achieving considerable success economically, that innovation practices in the Malaysian private organizations still remain relatively under-researched (Zain Mohamed & Rickards, 1996; Malaysian Science and Technology Information Centre [MASTIC], 1996). This statement is also supported by Sta Maria (2000) and Khairuddin (1999). Axtell, Holman, Unsworth, Wall and Waterson's (2000) are in the opinion that there is a large literature on creativity in general but few relating to innovation per se. Even though there have been huge volume of research on innovation, with 3,085 publications on the diffusion of innovation out of which 2,297 are empirical works (Rogers, 1983), surprisingly, good models and principles on innovation have yet to be developed (Zairi Mohamed, 1994). MASTIC (1996), realizing the situation and the need for Malaysian organizations to upgrade their innovations, has conducted a nationwide survey on innovation in 1994 involving a large number of Malaysian private organizations. Thus the problem statement of this study can be summarized as such "the critical need for more studies to be conducted linking organizational climatic factors and learning factors in order to analyze their influences on innovation within the Malaysian organizational context is pressing". Hence, the implementation of this study.

4.0 CREATIVE CLIMATE AND LEARNING ORGANISATION FACTORS

As being mentioned earlier, the Ekvall et al.'s (1983) creative Climate instrument contains ten factors of which each is further discussed in detail. The ten factors are:

1. Challenge/Motivation

This is described as the emotional involvement of the members of the organisation in its operations and goals (Ekvall, 1996). A high-challenging climate is seen when people are experiencing joy and meaningfulness

in their job, and as a result invest much energy (Ekvall, 1996). In contrast, an environment lacking in challenge and motivation exude feelings of alienation and indifference where the common sentiment and attitude is apathy with little interest for the job and the organization.

2. Freedom

It is the independence in behaviour exerted by the people in the organisation (Ekvall, 1996) where people interact by making contacts, giving and receiving information; discuss problems and alternatives; take initiatives and make decisions. The opposite climate would include people who are passive, rule-bound and anxious to stay inside established boundaries (Ekvall, 1996).

3. Dynamism/ Liveliness

This means the eventfulness of the life in the organisation where new things are happening all the time and alterations between ways of thinking about and handling issues often occur (Ekvall, 1996). There is a kind of psychological turbulence described by members as 'full speed', and 'go'. In contrast, where dynamism/liveliness is absent the situation is the opposite where there are no surprises, no new projects, and business goes about the usual mediocre way.

4. Trust/Openness

This means the emotional safety in relationships where everyone in the organisation dares to put forward ideas and opinions in the presence of high level of trust (Ekvall, 1996). There is open and straight communication. The opposite case is observed where there is lack of trust, there is the tendency that people are suspicious of each other and are wary of making expensive mistakes (Ekvall, 1996).

5. Idea Time

This is the amount of time people can use for elaborating new ideas (Ekvall, 1996). Where there is a high idea time situation, possibilities exist and people tend to use these possibilities to discuss and test suggestions which are not planned. In the opposite case where there is lack of idea time, every minute is occupied and this pressure makes thinking outside the instructions and planned routines impossible to happen (Ekvall, 1996).

6. Playfulness/Humour

Is the spontaneity and ease that is displayed where in a relaxed atmosphere, jokes and laughter characterises the organisation in contrast to it being serious, stiff and gloomy and cumbrous (Ekvall, 1996). The UK Government through DTI and CBI (1994) states that nine out of ten 'winning' companies being studied, have shown that two of the characteristics of innovation are leadership by visionary and unlocking the potential of people by good communication. A relaxed atmosphere will provide a better avenue for ideas to be communicated, presented and shared.

7. Conflicts

This means the presence of personal and emotional tensions (in contrast to idea tensions in the debates factor) in the organisation. In high level of conflict, groups and individuals display dislike for each other and the climate is 'strained with warfare' (Ekvall, 1996) where gossip and slander exist. Under this circumstances, there exists a great amount of tension and is not a good environment for generating ideas. In the opposite case, people behave in a more mature manner (Ekvall, 1996).

8. Idea Support

This is the extent of which new ideas are treated constructively (Ekvall, 1996). People listen to each other and encourage initiatives and possibilities for trying out new ideas are created. Where idea support is low, every suggestion is refuted by a counter argument (Ekvall, 1996).

9. Debates

This is the occurrence of encounters and clashes between viewpoints, ideas and differing experiences and knowledge in a positive manner (Ekvall, 1996). In such organisations people are keen to voice their opinions and views because they are heard. Where debates are missing, people follow authoritarian patterns without questioning.

10. Risk Taking

This is the promptness of response to arising opportunities where in the high-risk taking cases, decisions and actions are prompt and rapid, arising opportunities are seized and concrete experimentation is preferred (Ekvall, 1996). In a low-risk climate, people tend to 'play safe' and not willing to disturb the norm and more likely 'to sleep on the matter' before deciding on any matter.

The dimensions of learning organisation questionnaire (DLOQ) developed by Watkins and Marsick (1996a & 1999), serve as a tool for assessing the gap between where a company is and where it would like to be on the seven learning organisation dimensions (Gephart et al., 1996). The seven dimensions are explained further.

1. Promote Inquiry and Dialogue

Watkins and Marsick (1993) believe that inquiry is the crucial difference between talk as an imposition of ideas (eg. through lecture) on others and talk as a medium of learning. Inquiry requires a climate of trust which would lead to an exploration of the way people think, and inquiry that is based on open-minded curiosity enabling employees to suspend their presuppositions and judgments in the interest of better solution. People gain productive reasoning skills to express their views and the capacity to listen and inquire into the views of others; the culture is changed to support questioning, feedback and experimentation (Watkins and Marsick, 1999).

2. Continuous learning opportunities

This means that the opportunities are provided for ongoing education and growth for individual employees. Learning is designed into work so that people can learn on the job (Watkins & Marsick, 1996a).

3. Team Learning

Work is designed to use groups to access different modes of thinking; groups are expected to learn together; collaboration is valued by the culture and rewarded (Watkins and Marsick, 1999).

4. Embedded Systems

What is meant by embedded systems is to have both high and low technology systems to share learning, and these are created and integrated with work. Access to information is provided and systems are maintained (Watkins, 1998). In creating systems to capture and share learning will need at least two prerequisite conditions: people who are empowered toward a collective vision and who are encouraged to participate in enacting that vision through collaboration and team learning. An organisation can survive even if the workers leave, or even forget if the organisation has a system for remembering, capturing and sharing learning (Watkins, 1993), because of the preservation of learning. This means everyone is aware of the organisational vision and its goals and members work towards that. According to Watkins (1996), embeddedness involves a systematic effort to capture in some permanent way the learning of individuals and groups. This is best captured in the concept of organizational memory. Organisational memory refers to stored information from an organisation's history, such as knowledge about what has worked in the past when certain types of problems are faced. The usage of technology to capture this learning in the organization routines and databases is equally valuable so as to preventing an organization losing its intellectual capital by allowing learning to remain in individuals.

5. Empowerment

This occurs when people are involved in setting, owning and implementing a joint vision; responsibility is distributed close to decision making so that people are motivated to learn what they are held accountable for (Watkins & Marsick, 1999).

6. Systems connection

By having systems connection, members of the organisation are helped to see the impact of their work on the entire enterprise (Watkins, 1998). They scan the environment and use information to adjust work practices. The organization is linked to community. Watkins (1998) agrees that the fifth discipline of 'systems thinking' forwarded by Senge (1990) which means making systemic connections and creating embedded systems to capture and share knowledge is the glue that makes the other disciplines work. Watkins further accords that connecting the organisation to its environment, scanning the organisation's market and internal and external environments may be much more important than creating systems to capture and share learning in this ever-changing world.

7. Provide strategic leadership

This is when leaders model, champion and support learning. The leadership is used strategically for business results (Watkins & Marsikc, 1999).

5.0 METHODOLOGY

The study uses quantitative analyses, such as T-Test, ANOVA and multiple regression analysis in an attempt to find answers to the research questions being posed. Since the study involves three different variables, which are not controlled nor manipulated which concerned the relationships among the variables and the ability to explain and predict values on a variable from the relationships, then a multiple regression analysis is appropriate (Lehman, 1995). The independent variables are assumed to share very little variance with each other (not collinear) but together they account for much of the variance in the dependent variable (Davis, 2000).

Instrumentation

Three instruments were used in this study. Two instruments which formed part of the whole questionnaire set were obtained from the original questionnaires developed by various scholars (Ekvall et

al. (1983); Watkins & Marsick, 1996a). All the statements were in the English language. The instruments to measure the perceptions of respondents on the ten organizational climate factors, seven learning organization dimensions and two innovation constructs were pilot tested on those concepts. The questionnaire which contained the items of the three concepts came in four sections. The first section contained statements on the respondents' perceptions on organizational creative climate factors. There were a total of fifty items where each of the ten dimensions has five items. The second section contained items measuring the perceptions of respondents on the extent of learning culture dimensions. This variable has a total of forty-three items on seven dimensions. The third section contained items measuring the respondents' perceptions on the extent of innovation construct. This construct contained a total of thirty-two items. The breakdown of the items were 19 items for technology transfer, 5 items for diffusion of innovation and 8 items for organizational innovation concentrating on aspects of ISO 9000 implementation and basic foundation of TQM. Finally the fourth section contained items that seek information on the respondents' demographic background.

The instrument to measure the organizational climate factors was the Creative Climate Questionnaire (CCQ) developed by Ekvall et al. (1983). The ten factors of the CCQ were (i) challenge/motivation (ii) freedom, (iii) idea support, (iv) liveliness/dynamism, (v) playfulness/humor, (vi) debates, (vii) trust/openness, (viii) conflicts, (ix) risk taking and (x) idea time. The items consisted of statements which required the respondents to determine the degree to which the statements were true or otherwise of the organizational creative climate occurring in the organizations. The scale representing each statement was from 0 to 3. The "0" represented a degree equivalent to "not at all applicable", the "1" represented "applicable to some extent", the "2" represented "fairly applicable" and the "3" represented "applicable to a high degree". The CCQ was selected for usage in this case study over other instruments because of its wide range of ten factors covering creative climate within an organization both stimulating and hampering innovation. It was also selected because of the fact that the factors were said to be able to explain effects on productivity, job satisfaction, profit, quality, innovation, and well-being which in turn would give performance impact on the organizational resources both human and non-human according to Ekvall (1990) as cited by Ekvall (1996). The stability aspect of the reliability of the CCQ has been illustrated in a longitudinal study of a product development project in a high-tech company (Ekvall, 1993) as cited by Ekvall (1996). The CCQ has also previously been applied for use in many researches both in Europe and Asia, in particular in a study involving Swedish, German and Spanish organizations.

The instrument to measure learning organization dimensions used the Dimensions of Learning Organization Questionnaire (DLOQ) developed by Watkins and Marsick (1996a) with each dimension having at least six items or more. The seven dimensions of learning organization with the relevant items were (1) continuous learning, (2) dialogue and inquiry, (3) team learning, (4) embedded systems, (5) empowerment, (6) system connections and (7) provide leadership. The total items were forty-three with each dimension having 6 items each except for the dimension continuous learning having 7 items. The instrument has been constructed in a way where each item required the respondent to determine the degree to which the statement is true or otherwise of the extent of organizational approach practiced in the organization. Each statement was measured on a common scale of 1 to 6 continuum ranging from "1" representing "almost never" to "6" representing "almost always". The DLOQ was selected for usage in this study because it has been widely used in studies involving innovation before in Malaysia and in the USA besides other parts of the world. It has proved to be a reliable measure of learning culture. The DLOQ had also been used in over 200 companies worldwide.

Innovation questionnaire on the other hand contained two main constructs namely (I) technological innovation (technological transfer, and diffusion of innovation), and (2) organizational innovation focusing on basic elements of TQM and quality assurance program such as ISO 9000 certification. There were thirty-two items to cover all the two sub constructs. The thirty-two items on the two constructs of technological innovation (24 items) and organizational innovations (8 items) were constructed by the researcher Meriam Ismail based on the guidelines provided by Wong et al.(1999),OECD(1997) and MASTIC (1996).The statements constructed required the respondents to determine the degree to which something is true or otherwise. All the items were constructed using rating scales on a continuum of 1 to 6. All items for the two constructs have been reviewed by two academic scholars, one from a local university and another from overseas.

The fourth and final part of the questionnaire contained information on the demographics of the respondents. This included gender, age in years, job category, education background, tenure of service with the organization, and the length of organization establishment in years and total organization population size. This section contained eight items.

Measures

Following are the reliability estimates for each of the ten factors of the CCQ and each of the seven dimensions of the DLOQ based on the pilot tests. The original estimates of the CCQ were determined by Ekvall (1996). The Cronbach Alphas for each of the CCQ factors obtained from the pilot test were challenge/motivation (.78), freedom (.68), idea support (.83), liveliness/dynamism (.76), playfulness/humour (.74), debates (.78), trust/openness (.55), risk taking (.68), idea time (.72), and conflicts (.61). The overall reliability for 50 items of the CCQ was .94. The reliability estimates for the seven DLOQ dimensions were continuous learning (.83), dialogue/inquiry (.89), team learning (.87), embedded systems (.81), systems connection (.88), empowerment (.90), and strategic leadership (.92). The overall reliability of the learning organization variable is .97. The reliability estimates for the reliability for the overall innovation was .98. The three constructs have proved consistently reliable with all the scales above the recommended .70 (Nunally, 1978).

Post Hoc Factor Analysis for the Innovation Items

To test whether the 32 items were appropriately constructed and used in the study based on the reliability indices of the pilot test as well as based on the validation by the two experts, a post hoc factor analysis was conducted on the items using the overall respondents' (N=259) responses to the instrument. The results of the analysis using the rotation method, Varimax with Kaiser Normalisation were presented in Appendix 2. The factor analysis showed that the items were categorised into 3 components where 13 items in Component 1 were related to 'technology transfer' followed by 11 items in Component 2, closely related to 'diffusion of innovation'. These 24 items appropriately came into the technological innovation category as was earlier decided. Finally, the last 8 items which fell into Component 3 were justifiably representing organizational innovation.

Analysis

The 18 sampled organizations were obtained through random selection from a list of 165 private organizations in the Federal Territory of Kuala Lumpur which have acquired ISO 9000 series provided by SIRIM directory (2000). The respondents comprised of employees having at least an A-level or equivalent academic qualification were selected through convenient sampling by the organizations' representatives. A total of 467 employees from three major levels of employment namely top/senior management, middle/lower management/supervisory, and the technical/administrative support staff were selected but only responses from 259 respondents (56.5%) were usable.

The analysis procedures conducted were in line with the research questions being posed. Before the data was analyzed, an exploratory data analysis EDA was conducted on the data. From the EDA it was found that both assumptions of normality and homogeneity of variance were met for all the three variables. Following this, collinearity diagnostics were conducted to examine whether the two independent predictor variables, organizational climate for creativity and learning organization dimensions were highly correlated. In examining the data for collinearity for N= 259, the analysis revealed that the two predictor variables have low collinearity ($r < .45$).

The research questions posed are as such:

1. How does each of the ten factors of the organisational creative climate variable relate with the innovation construct in the sampled organisations?

2. How does each of the seven dimensions of the learning organization variable relate with the innovation construct in the sampled organisations?

3. How do the differences in the members' perceptions on organisational creative climate, the learning organisation culture and innovation, among the employees compare between the local organisations and the MNCs?

4. What are the differences in the members' perceptions on organisational creative climate, learning culture and innovation among the three levels of employee groups in the sampled organisations?

5. Is there any difference in the members' perceptions on organisational creative climate, learning organisation culture and innovation between small, medium, large and very large sized organisations within the sampled organisations?

6. To what extent do the factors of both organisational creative climate and learning organisation variables jointly explain members' perceptions on the observed variances in innovation in the sampled organisations?

7. How much of the observed variances in the overall innovation construct are explained by the highly predictive factors identified under the reduced model and how good is the reduced model compared to the full model?

8. How do the factors from the organisational creative climate, learning organisation culture jointly explain observed variances in the members' perceptions on innovation in the local organisations?

9. How do the factors from the organisational creative climate, learning organisation culture jointly explain observed variances in the members' perceptions on innovation in the MNCs?

6.0 FINDINGS

The sampled organizations vary according to core businesses (from manufacturing, telecommunication, finance and insurance, consulting, property developer, education services, and engineering), population size and status. Thirteen organizations were locally owned (and registered) while the rest were multinational corporations, MNCs (Japanese, French, US and British owned). Three organizations were small sized with 100 or less total employees, one large with the number of employees between 1000 but less than 1,999 people and one very large sized with more than 2,000 employees. The rest were medium sized with population more than 100 but less than 1000 people. From the total 259 respondents, 52.5% were males while 47.5% females. While in the foreign MNCs organizations, 39 or 49.4% were males and 40 or 50.6% were females; the respondents from the local organizations were 53.9% or 97 persons were males while 46.1% or 83 persons were females. Out of the sampled population of 259, less than 1% or only 2 persons of the respondents are more than 51 years of age while rest were below 50 years old. In addition almost half of the total respondents which was 46.3% were those whose tenure of work were less than five years. More than half of the total respondents (52.1%) have acquired bachelors degrees and above.

Relationship Between Organizational Creative Climate and Innovation

From the correlation analysis being carried out, it was observed that each of the ten factors of the creative climate variable shared significant ($p < .05$) but low relationship with innovation ($r < 0.4$) with the factor 'Challenge' having the strongest relationship ($r = .475$). The overall relationship of the creative climate variable was .473. When the factors are regressed with innovation it was found that about 35% significant contribution on innovation was accounted for by the creative climate factors alone. This answers research question 1.

Relationship Between Learning Organization Dimensions and Innovation

In answering research question 2, it was found that all of the seven dimensions have significant moderate ($r >0.5$) to high ($r >0.7$) relationships with innovation. When the dimensions of the learning organization were regressed with innovation, it was observed that about 57% of the contribution towards innovation were accounted for by the learning dimensions. As a check and balance, a post hoc factor analysis using the rotation Varimax was conducted involving 43 items of the learning organisation variable (7 dimensions) and 32 items (3 sub constructs) of the innovation construct to observe whether the high correlation between the two variables ($r = .733$) had anything to do with the items of either variables are actually similar in nature. The factor analysis showed that the 32 items of the innovation construct were grouped into three components, undoubtedly, technological innovation (technology transfer and diffusion of innovation) and organisational innovation. While the 43 items of the learning organisation variable fell into another seven components but each component having different number of items. Please see Appendix 1 for more details of the analysis. A similar factor analysis was conducted involving the 50 items of the CC and the 32 items of the innovation questionnaire and the findings showed that the 50 items of the CC fell into different components from the 2 components of the innovation items. At the same time all the 93 items (43 of LO and 50 of the CC variables) were again analysed using factor analysis in order to observe the grouping of the items, whether they either of the 93 items share similarities. The findings from the analysis using rotation Varimax with Kaiser Normalization showed that 43 items were grouped into one large component while the 50 items of the CC were grouped into another different large component. Thus, it can be inferred from the findings that the 43 LO items and the 50 CC items did not share similarities and are not highly correlated with each other.

Comparing Creative Climate, Learning Culture and Innovation Between Local Organizations and MNCs

Three T-Test analyses respectively were conducted to compare the members' perceptions of organizational creative climate between local organizations and MNCs, members' perceptions on learning organization between local organizations and MNCs and the members' perceptions on innovation between the local organizations and MNCs. The results showed that there was no significant difference in perceptions of creative climate ($P =.266$). Similarly no significant differences were observed in members' perceptions on learning culture ($P = .753$) as well as innovation ($P =.934$) between the local organizations and MNCs. This give indications that the creative climate, the learning culture and innovation in the local organizations are

more or less the same with those in the MNCs. This answers research question 3.

Comparing Creative Climate, Learning Culture and Innovation Among the Three Organizational Job Levels and Organizational Size

Two ANOVA analyses were conducted. One was to determine any significant differences among the three groups of employee job levels, top, middle and staff in their perceptions on creative climate, learning culture and innovation. The other analysis was carried out to determine any significant differences in members' perceptions on creative climate, learning culture and innovation among the small, medium, large and very largely populated organizations.

Both findings from the analyses revealed that there were no significant differences among the three employee job levels in creative climate (P = .545), in the learning organization (P = .267) and in innovation (P = .793). Similarly there were no significant differences among the small, medium, large and very large sized organizations in creative climate (P= .332), in learning culture (P = .347) and in innovation (P = .703). Both results from the ANOVA analyses indicated that the creative climate, learning culture and innovation were equally perceived by the three groups which indicated everyone share the same idea on creative climate, learning culture and innovation in each organization. Similarly everyone of the employees in either the small, medium, large or very large sized organizations has little difference in perceiving creative climate, learning culture and innovation in his/her organizations. In other words, the creative climate, learning culture and innovation in either the four different sized organizations were about the same. The explanation answers research questions 4 and 5 respectively.

Interaction of Creative Climate and Learning Culture Factors On Overall Organizations

In answering research question 6, 7, 8 and 9, multiple regression analyses were conducted. A regression analysis was conducted involving both sets of the independent variable and their 17 factors together to determine the joint contribution of both variables on the observed variances in innovation.

The analysis revealed that the 17 factors together have significant contribution of 58.5% (R^2 = .585, F = 19.980, P = .000) to the observed variances in innovation. This answers research question 6. The results are shown in Table 1 and Table 2 below:

Table 1: Model Summary of the Multiple Regression Analysis of Both Sets of the Independent Variables, Creative Climate and Learning Organisation with Innovation

Model	R	R Square	Adjusted R^2	Std. Error of the Estimate
Factors from both sets of CC and LO variables	.765	.585	.556	19.76

Table 2: ANOVA- Creative Climate Factors and Learning Organization Dimensions With Innovation

Model		Sum of Squares	df	Mean Square	F	Sig.
CC and LO factors	Regression	132616.6	17	7800.979	19.980	.000
	Residual	94096.553	241	390.442		
	Total	226713.2	258			

Three factors from the learning organization were identified as the factors having high predictive powers. This result was obtained by conducting stepwise multiple regression analysis. Similar result was obtained when a forward multiple regression was conducted where the three factors identified in hierarchical order were 'Embedded Systems' (Beta =6.120, P=.000), 'Systems Connection' (Beta= .313, P =.000), and 'Continuous Learning' (Beta = .125, P =.035). With this finding, the regression equation for the full model is obtained. However, when the backward multiple regression was conducted for check and balance it was found that two organizational creative climate factors were identified to have high predictive powers along with the three learning factors identified earlier. Thus in this case there was an influence of creative climate on innovation as well as from the learning culture. The creative climate factors were 'Challenge' (Beta = .120, t = 2.040, P = .042) and 'Trust' (Beta = -.111, t = -2.022, P = .044). Using the stepwise multiple regression results, the equation of the model obtained is:

Innovation = 29.370 + 2.055 (Embedded system) + 1.608 (System Connection) + .622 (Continuous learning). Similarly, if the results from the backward regression was used the equation of the model is given by:

Innovation = 26.632 + 1.967 (Embedded system) + 1.643 (System connection) + 1.472 (Challenge) – 1.204 (Trust) + .594 (Continuous learning).

Then to determine whether the reduced model (where the three factors with high predictive powers together with the ten factors of the creative climate) were regressed with innovation variable, the findings showed that the 13 factors contributed with significance as much as 58.0% (R^2 = .580, F = 26.005, P =.000) to the explanation of the observed variances in innovation. Then a test was conducted to confirm that the reduced model was almost as good as the full model. This answers research question 7.

Interaction of Creative Climate and Learning Culture Factors On Local and MNCs

A third regression analysis followed by the fourth regression were conducted to determine the extent of the joint contribution of both sets of the independent variables to the explanation of the observed variances in innovation for the 13 local organizations and for the 5 MNCs respectively. It was found that 60.2% (R^2 = .602, F = 14.427, P = .000) of the factors have significant contribution to the explanation in the observed variances in innovation for the local organizations and 67.6% (R^2 = .676, F = 7.476, P = .000) to the explanation for the MNCs. The findings are shown in Table 3, Table 4, Table 5, and Table 6 respectively.

Table 3: Model Summary of the Multiple Regression Analysis of Both Sets of the Independent Variables, Creative Climate and Learning Organisation with Innovation In the Local Organisations

Model	R	R Square	Adjusted R^2	Std. Error of the Estimate
Factors from both sets of CC and LO variables	.776	.602	.560	20.72

Table 4: ANOVA-Creative Climate Factors and Learning Organization Dimensions With Innovation (Local organizations)

Model		Sum of Squares	Df	Mean Square	F	Sig.
CC and LO factors	Regression	132616.6	17	6194.520	14.427	.000
	Residual	69559.495	162	429.380		
	Total	174866.3	179			

Table 5: Model Summary of the Multiple Regression Analysis of Both Sets of the Independent Variables, Creative Climate and Learning Organisation with Innovation in the MNCs

Model	R	R Square	Adjusted R^2	Std. Error of the Estimate
Factors from both sets of CC and LO variables	.882	.676	.585	16.60

Table 6: ANOVA- Creative Climate Factors and Learning Organization Dimensions With Innovation In MNCs

Model		Sum of Squares	Df	Mean Square	F	Sig.
CC and LO factors	Regression	35028.030	17	2060.472	7.476	.000
	Residual	69559.495	61	275.620		
	Total	174866.3	78			

The factors 'Systems Connection' (Beta= .045, P = .000) followed by ' Embedded Systems' (Beta = 2.961, P = .004) were identified to have high predictive powers on innovation for the local organizations while 'Strategic Leadership' (Beta = .422, P = .007) followed by 'Team Learning' (Beta = .338, P = .044) were identified to be highly predictive of innovation for the MNCs and in addition there were two organizational creative climate factors as well namely ' Challenge' (Beta = .302, P = .037) and 'Debates' (Beta = .287, P = .046). It is interesting to note here that none of the creative climate factors have influence on innovation in the local organization but in the MNCs the situation is more balanced. The MNCs provided a challenging climate for their members and this means the MNCs provided sufficient scope for members to generate novel solutions and the members in return respond positively towards this environment (Ekvall, 1996). The members were intrinsically rewarded by their need to seek achievements. A climate of 'Debates' was also present where the MNCs were practicing the exchanging of ideas verbally or otherwise and interact into conversations more often among individual members or teams (Ekvall, 1996). This climate of 'Debates' will be expected to have a positive influence on 'Team Learning' and this was obviously so as shown by the results above. In other words a climate of 'Debates' seems to occur concurrently with the presence of 'Team Learning' which involved mastering the practices of dialogue and discussions, which according to Senge (1990) the two distinct ways teams converse and is a common feature for innovation. This answers research question 8 and 9.

7.0 CONCLUSIONS

What can be concluded from the results mentioned earlier are:

- There is no difference observed in members' perceptions on creative climate, learning organization culture and innovation between MNCs and local organizations.
- There is no difference in members' perceptions on creative climate, learning organization culture and innovation among the three job levels in the sampled organizations.
- There is no difference in members' perceptions on creative climate, learning organization culture and innovation among the small, medium, large and very large sized organizations.

In summary, it can be concluded that for this particular study, the learning organization variable with its seven dimensions have significant higher contribution towards explaining innovation as compared to the ten factors of the organizational creative climate. However, there is a considerable amount of significant contribution from the creative climate factors towards innovation, about 35% when the multiple regression analysis was done separately involving just the climatic factors. This showed that there was a certain amount of creativity present within the organizational members which contributed to innovation. This creativeness was mostly generated by having a challenging environment (Challenge) and a climate of trust and openness (Trust) present in the organizations. A climate of challenge and motivation provides emotional involvement of the members of the organizations in the operations and goals as what Ekvall (1996) has described. People tend to respond positively when they are challenged and being provided with sufficient scope to generate novel solutions. Giving the employees opportunities to find and solve challenging problems and implement solutions is intrinsically rewarded in their need for achievement and would be eventually rewarded. A climate of trust and openness provides emotional safety in relationships where everyone in the organization dares to put forward ideas and opinions in the presence of high level of trust (Ekvall, 1996). According to Nonaka (1994) trust and openness can be enhanced through teamwork implementations where verbal interactions in the form of dialogue and inquiry most frequently take place (Watkins, 1996).The learning dimensions of 'Embedded Systems', 'Systems Connection' and 'Continuous Learning' were also identified to have significant high predictive powers on innovation activities occurring within the organization as compared to the other four learning factors. 'Embedded systems' means a systematic effort implemented by the organizations to capture the intellectual capital of the individuals in a permanent manner and is best done by capturing learning in the organizational memory (Watkins, 1996). By embedding knowledge and information into the organizational memory is to take actions (without restructuring the norms) on any detection of errors, or any match or mismatch identified by the individuals in the organization (Argyris and Schon, 1978) for the improvement of the organizations' core business. 'Systems connection' means scanning the organizations' markets in the internal and external environments and be able to adjust the working systems within the organization (make necessary changes) to suit with the inside and outside requirements. Outside requirements can be various, such as customers' needs, political requirements and globalization competitiveness. Continuous learning means putting emphasis on continuous individual learning of the employees to upgrade their skills in order to perform better at the tasks at hand. This can be done by having ongoing programs (hands-on, or on the job training) which involve continuing series of small experiments, designed to produce incremental gains in knowledge (Garvin, 1993).

The reduced model is as good as good as the full model.

The two creative climate factors 'Challenge' and 'Debates' and two learning factors which were 'Strategic Leadership' and 'Team Learning' have considerable significant influences on innovation in the MNCs while only the learning organization factors that of 'Embedded Systems' and 'Systems Connection' have significant influences on innovation in the local organizations. The local organizations were in general lacking in the presence of creative climate compared to the MNCs.

8.0 DISCUSSIONS AND RECOMMENDATION

The findings reflect the lack of influence of the eight organizational creative climate factors (besides challenge and trust/openness) on innovation in the sampled organizations (particularly in the local organizations) and the lack of influence of four other learning dimensions (besides embedded systems, systems connection and continuous learning) on innovation among employees in the organization. There is no influence of creative climate factors on the local organizations which indicate that the 13 local organizations do not precipitate the necessary creativity in individual employees which is necessary for generating innovation. The local organizations should be looking into ways of improving its organizational climate which would encourage more creativity among employees by emphasizing on the ten creative climate factors. Changing the climate to one which is creative, is one of the most difficult task to do for top management (Majaro, 1988; Roffe, 1999). However, the local organizations should make efforts towards it. The areas which could be made the focus are the ten factors of the CCQ namely by (I) making the climate at work more challenging/motivating which means getting emotional involvement of the members in the organization's operations and goals (2) making the climate more open and trustworthy by having emotional safety in relationships, (3) giving more time for members to elaborate new ideas, (4) by displaying more spontaneity and ease in actions, (5) by reducing the presence of emotional tensions (conflicts), (6) by supporting new ideas brought up, (7) by debating on viewpoints and on ideas forwarded, (8) by having more courage to take risks on opportunities, (9) by giving more freedom to employees to act, and (10) injecting liveliness and dynamism at the workplace.

Although the learning culture seems to be contributing substantially towards the innovation in the organizations, however, the organizations should be improving its learning on these areas (besides emphasizing on having a strong external and internal networking, capturing learning in the organizations' memory, emphasizing on continuous individual learning, exercising strategic leadership, and emphasizing team learning), (1) by giving emphasis in giving more empowerment to its members,(2) and by encouraging dialogue and inquiry to occur among the members. The study can be expanded further by examining the effects of the two sets of independent variables on separate innovation constructs, technological innovation and organizational innovation. Alternatively, similar study can be replicated for implementation involving the public sector thus providing room in reinforcing the validity of the instrument.

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